

Independent & Dependent Variables

Name: _____

Class: _____

An *independent variable* is a factor that is manipulated in an experiment. The experimenter controls whether or not subjects are exposed to the independent variable. The *dependent variable* is measured to determine if the manipulation of the independent variable had any effect. For example, to test a hypothesis that eating carrots improves vision, the experimenter would manipulate whether or not subjects ate carrots. Thus, eating carrots is the independent variable. Each subject's vision would be tested to see if carrot eating had any effect. Thus, vision is the dependent variable. The subjects assigned to eat carrots are in the *experimental group*, whereas subjects not eating carrots are in the *control group*.

Experiment 1:

John thinks that a special juice will increase the productivity of his workers. He creates two groups of 50 workers each and assigns each group the same task (in this case, they're supposed to staple a set of papers).

Group A is given the special juice to drink while they work. Group B is not given the special juice. After an hour, John counts how many stacks of papers each group has made. Group A made 1,587 stacks, Group B made 2,113 stacks.

Identify the:

1. Control Group - _____

2. Experimental Group - _____

3. Independent Variable - _____

4. Dependent Variable - _____

5. What should John's conclusion be? _____

6. How could this experiment be improved? _____

Experiment 2:

Alice notices that her shower is covered in a strange green slime. Her friend Emma tells her that coconut juice will get rid of the green slime.

Alice decides to check this out by spraying half of the shower with coconut juice. She sprays the other half of the shower with water. After 3 days of "treatment" there is no change in the appearance of the green slime on either side of the shower.

6. What was the initial observation? _____

Identify the:

7. Control Group - _____

8. Experimental Group - _____

9. Independent Variable - _____

10. Dependent Variable - _____

11. What should Alice's conclusion be? _____

Experiment 3:

Jose is working on a science project. His task is to answer the question: "Does Gatsby (which is a commercial hair product) affect the speed of hair growth". His family is willing to volunteer for the experiment.

12. Describe how Jose would perform this experiment. Identify the control group, the experimental group, and the independent and dependent variables in your description.

Experiment 4:

13. Write a story about an experiment you would do about some topic or idea. Give the background story and then identify the control group, the independent variable, the dependent variable. For this activity, you should also give a hypothesis and at least two possible outcomes for your experiment with conclusions for each.